

CLAIMS

- 1) Pneumatic fixing machine comprising a piston mean (30) sliding inside a cylinder (33); first valve means (5) mobile between two extreme opening (E) and closing (D) positions, in correspondence of which they connect in flow communication a inlet portion (33a) of said cylinder (33) respectively with a feeding of pressurized fluid and with an external outlet; second valve means (2) which can be operated by means of a trigger mean (7) and mobile at least between an occlusion position (M) and a passage position (L) to connect in flow connection, through at least a first duct (9), a base portion (5a) of the first valve means (5) respectively with the feeding of fluid in pressure and with an external outlet; said machine (1) being characterized in that at least comprises:

 - third valve means (3) mobile between a position of obstruction (N) and a crossing position (Q), respectively to cut off or to open a flow connection between the duct (9) and the first valve means (5);
 - fourth valve means (4) which can be operated by means of the trigger mean (7) and mobile between a block position (S) and a transit position (T), in which respectively they obstruct or make free a flow connection between the cylinder (33) and the third valve means (3);

in a first activation condition (A) of the machine (1), the trigger mean (7) is partially pressed, positioning the second valve means (2) in the passage position (L), in order to allow the pressurized fluid to push the first valve means (5) in the opening position (E), for the actuating of the piston mean (30); in a second activation condition (B) of the machine (1), the trigger mean (7) is further and completely pressed and it moves the fourth valve means (4) in the transit position (T), in order to allow the fluid in pressure coming from the cylinder (33) to move the third valve means (3) in the occlusion position (N), causing the return of the first valve means (5) in the closing position (D) and the consequent return of the piston mean (30) in the initial position (F).
- 2) Machine according to claim 1 characterized in that the fourth valve means (4) comprise a lengthened and shaped element, sliding housed inside a first seat (12),

being complementary shaped and in flow connection with the cylinder (30) through at least a second duct (16).

- 5 3) Machine according to claim 2 characterized in that the fourth valve means (4) comprise at least an hollow (14) in which a shaped free end (7a) of the trigger mean (7) is engaged.
- 10 4) Machine according to claim 1 characterized in that it comprises elastic means (13) fit for exerting an elastic strength on the fourth valve means (4) and to maintain them, in absence of strengths exerted by the trigger mean (7), in the block position (S).
- 15 5) Machine according to claim 2 characterized in that the elastic means (13) consist in at least a compression operating helical spring, housed in the first seat (12) and matching a prominence (4a) of the fourth valve means (4).
- 20 6) Machine according to claim 1 characterized in that the third valve means (3) comprise a shaped stem provided at least of end portions first (3a) and second (3b), respectively sliding housed in a second seat (15) and a first room (10); the first end portion (3a) being fit to occlude the exit of the first duct (9) inside the second seat (15) in the occlusion position (N) of the third valve means (3).
- 25 7) Machine according to claim 6 characterized in that the second end portion (3b) has an equivalent transversal section greater than that of the first portion (3a).
- 8) Machine according to claims 2 and 6 characterized in that it comprises at least a third duct (17) for the flow connection between the first seat (12) and the first room (10).
- 30 9) Machine according to claims 2 and 8 characterized in that the fourth valve means (4) comprise an hollow (4b) to connect in flow communication the ducts second (16) and third (17) in the transit position (T) of said fourth valve means (4).

- 10) Machine according to claim 6 characterized in that the base portion (5a) of the first valve means (5) is sliding contained in a second room (8) in flow communication with the second seat (15).
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- 11) Machine according to claim 1 characterized in that the first valve means (5) comprise a closing portion (5b) fit to cut off the pressurized fluid flow in the closing condition (D); said closing portion (5b) having a smaller equivalent transversal section of that of the base portion (5a).
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- 12) Machine according to claim 6 characterized in that the first valve means (2) comprise a lengthened and shaped element, sliding housed in a third seat (20), provided with a first opening (23), flowing in a third room (21) that it is in flow connection with the feeding of the fluid in pressure, of at least a second opening (24) intermediate and connected to the at least first duct (9) and of a third opening (22) for connecting with the external outlet.
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- 13) Machine according to claim 12 characterized by the fact the first valve means (2) comprise at least an external portion (2a), fit to match the trigger mean (7), and a lock portion (2b), opposite to said external portion (2a) and fit for closing the first opening (23) of the third seat (20) in the occlusion position (M) of said first valve means (2).
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- 14) Machine according to claim 1 characterized by the fact the geometric axis of the valve means second (2) and fourth (4) are mutually perpendicular.
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- 15) Machine according to claim 1 characterized by the fact the geometric axis of the first valve means (5) and third (3) are nearly coincident and nearly parallel to the axis of the second valve means (2).
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